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**OPERATION DESERT SHIELD: THUNDER STORMS OF LOGISTICS:
DID WE DO ANY BETTER DURING POST COLD WAR INTERVENTIONS?**

by

Colonel Kenneth Ervin King
Quartermaster

Professor Bernard F. Griffard
Project Adviser

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

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ABSTRACT

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  "Demand-generated logistical support is essential to establishing the seamless/ transparent distribution system necessary to sustain a deployed force. Operation Desert Shield and Storm utilized "Push-Logistics" which resulted in an overwhelmed logistics pipeline, poor in-transit/total asset visibility (Logistics Intelligence), and ultimately, loss of customer confidence. To reinforce this study, I compare logistical challenges found in post Cold War intervention operations (Operations Restore Hope, Support Hope, and Joint Endeavor) with those found in Operation Desert Shield and Storm."

OPERATION DESERT SHIELD: THUNDER STORMS OF LOGISTICS:
DID WE DO ANY BETTER DURING POST COLD WAR INTERVENTIONS?

Two weeks prior to the start of Desert Storm's ground war I was pulled from the Battalion S2/3 job and placed in command of a company in the 530th Supply and Service Battalion (SUPERLEGS), 46th Support Group (SUPER GROUP), 1st Corps Support Command (COSCOM), XVIII Airborne Corps. My predecessor had lost the confidence of the command, so brand new in the saddle I faced the challenge of trying to secure the critical unit equipment and supplies needed for combat support operations. At that time, which was critical in posturing for ground operations, the logistical system was unresponsive. Part of our problem was that the bulk of the equipment and supplies we were seeking had been shipped from Fort Bragg, North Carolina and were somewhere in theater. However, due to poor In-Transit Visibility (ITV), Total Asset Visibility (TAV), or logistics intelligence, the company's shipping containers were lost in disorder and confusion in overcrowded ports like many other organizations. A condition caused by an infrastructure that lacked an adequate number of logisticians and equipment to move the material from the ports due to poor force structuring decisions early in the deployment. In short, my situation as a company commander was common throughout the theater. As an interim fix, many units at all levels and types found the answer through reordering similar items utilizing high-priority requests while scrounging what they could through other non-standard means. At the strategic level, the interim fix per the wholesale system was to "push" tons of non-requisitioned supplies and equipment into theater. Granted, some of this was welcomed and needed, but too much "anticipatory" or push logistics eventually became counterproductive. As a result, stockpiles quickly turned into Iron Mountains with little useful identity. Logisticians found themselves buried by the "Thunder Storms of Logistics." Not having a Theater Distribution Plan (TDP) early on, botched automation platforms feeding a poor logistics intelligence picture, and a shortage of logisticians muscle only fueled the variety of logistical countermeasures taken to offset the seams in the operation. A TDP is one of the first items that should have been in place at the onset to guide logistical efforts. One finally surfaced well after the ground war had started but was too late to make much of a difference.

The above personal account is that of Operations Desert Shield/Storm (DS/DS) which commenced in January 1991. Historians cite this campaign as one of America's most successful wars due to the superb military demonstration of joint, combined, and coalition operational art. Skilled and swift maneuvers toppled the Iraqi military in what is fondly termed as the "Hundred-Hour War." Logisticians did three things: built the theater infrastructure, sustained a victorious military campaign, and closed out the theater of war by bringing

personnel and materiel home.[1] LTG Frederick Franks, Commander, VII Corps, summarized the logistics effort of Operation Desert Shield and Desert Storm as "Brute Force Logistics." This is an awesome tribute to logisticians from a seasoned tactician. Yet, we must keep in mind that the war only lasted 100-hours. With that said, could "Brute Force Logistics" have sustained a 200-hour war, or perhaps a 300-hour war?

The intent of this paper is to analyze the United States Army's logistical infrastructure and validate the hypothesis that "demand-generated logistical support is essential to establishing a seamless and transparent distribution system necessary to sustain the deployed force. DS/DS utilized push-logistics which resulted in an overwhelmed logistics pipeline, poor ITV/TAV (logistics intelligence), and ultimately the loss of customer confidence." Anticipatory logistics is a "good thing," but too much of it as seen in DS/DS quickly becomes counterproductive. Moreover, this is especially true when the primary logistical tenant is "improvisational" due to a slow and often non-responsive theater logistics system. Again, make no mistake, the logisticians of DS/DS made it happen. Yet, it was executed it in a way that was contrary to logistical doctrine and theory. The bottom-line is that ingenuity, initiative, and hard work by many dedicated men and women, rather than consistently applied logistical practices saved the day.[2] To validate the above hypothesis, we must examine the seams of the operation. They are force structuring, distribution management, logistics intelligence, and customer confidence. Logistics intelligence is broken down into automation platforms and databases, manual procedures, ITV/TAV, and Joint Total Asset Visibility (JTAV).

First, let us get an appreciation on the magnitude of logistical muscle that went into the Gulf War (Logistical Overview). The discussion that follows assumes the reader is familiar with the DS/DS campaign and therefore minimum details of the tactical operations are included.

Logistical Overview

DS/DS represented the largest U.S. military deployment effort since Vietnam. During this operation, the Army's depot supply and transportation systems moved over 519,000 tons of Army supplies to Southwest Asia. Two of the Army's major depots - the New Cumberland Army Depot, Pennsylvania and the Red River Army Depot, Texas – processed much of the supplies.[3] "More than 117,000 wheeled vehicles and 12,000 tanks and armored vehicles deployed and redeployed. More than 1,700 helicopters, 41,000 cargo containers and 350,000 tons of unexpended ammunition went to the theater and returned in over 500 ships and 10,000 aircraft sorties. Over 95 million meals served and 2.5 billion gallons of fuel consumed. Mail for 540,000 Soldiers, Airmen, Marines, and Sailors reached staggering proportions—38,000 tons, enough to

cover 21 football fields eight feet high. More than 5,000 department and contractor civilians also deployed."[4] The Army supported military and logistics bases that stretched over 600 miles from its main supply bases at the Ad Dammam and Al Jubail seaports while the Marine Corps supply line stretched 250 miles from its main supply source.[5] These sheer numbers are incredible and in many ways unbelievable. This massive "push of logistics" quickly overwhelmed the theater infrastructure. The immature logistical infrastructure was a direct result of initial force structuring decisions that slashed logisticians' from the early deployment schedule.

Force Structuring

The U.S. Central Command (USCENTCOM) was responsible for logistics management in the theater of operations. USCENTCOM tasked the Army component command with in-theater management of seaports, common-user land transportation, airport operations, and the distribution of common items such as food, clothing, lubricants, and conventional munitions to all services. The U.S. Army headquarters in the region U.S. Army Central Command (ARCENT) planned for the ground operation and managed the theater communications zone, which was responsible for coordination of joint, combined, and coalition operations that included host nation support activities.[6] Combat troops and large quantities of supplies and materials arrived in advance of logistics personnel and the equipment needed to physically handle and manage the shipments. In mid-November 1990, two key logistics organizations arrived from CONUS, the 321st TAMMC (doctrinally capable of providing centralized materiel management for the theater), and the 988th Repair Parts Supply Company (GS). The 988th deployed to provide repair parts support to echelons-above corps units but arrived without its Authorized Stockage List (ASL) and could not issue parts to customers. The 321st requisitioned a replacement ASL, but the parts were slow to arrive which further compounded the problem. In addition, a system for distributing the limited Class IX in Saudi Arabia did not exist and resulted in a significant amount of frustrated cargo at the ports and elsewhere.[7] As more units arrived in theater, the demand for repair parts increased which caused a snowball effect. Supply personnel quickly became overwhelmed and frustrated as one could expect. This and other issues set the stage for logistical challenges from the beginning. LTG William G. ("GUS") Pagonis, 22nd Support Command's Commanding General from August 1990 to January 1992, states: "Because of the simultaneous deployment of combat and combat support forces, material management assets did not deploy early in the process. Automated recordkeeping of items in the theater suffered and it was plain tough to keep accurate records on time sensitive arrivals and departures."[8] The problems with force structuring eventually affected distribution

efforts and served as the "best fertilizer" to prosper the growth of Iron Mountains, which is exactly what happened.

Distribution Management

ALOC distribution management problems included an ineffective theater tracking system to provide for ITV of assets. Poorly aligned Supply Support Activities (SSAs) with their supported customers and the use of container shipments with multiple consignees overloaded the break bulk points (BBP). Cargo was often misrouted, frustrated, and delayed.[9] The Army had no reliable materiel tracking systems and used sloppy documentation procedures, and lacked sufficient MHE to move the containerized cargo to appropriate distribution centers. Due to documentation separating from containers or none provided at all, at least half of the containers arriving theater had to be physically opened in order to determine their contents. An effective logistics intelligence system would have eliminated this. It is no secret that units abused the procedures for assigning priorities to requisitions. In Class IX alone, high priority (issue priority designator 01-08) requisitions averaged between 65 and 85 percent of the total requisitions submitted to the wholesale system on a daily basis.[10] This caused delays in the shipment of other critical supplies. By December 1990, 7000 tons of cargo was on the ground at Dover Air Force Base, Delaware awaiting shipment to Saudi Arabia, which was at least six times the total Department of Defense (DOD) airlift capability. That means that every aircraft in our inventory would have to make six flights in order to get all the supplies on the ground at Dover into theater. Lets not forget that Dover was not the only exporting hub supporting the operation; again, did we think this through completely? As an interim fix, the United States Transportation Command (USTRANSCOM) established "Operation Desert Express and Desert European Express" systems with the mission to deliver overnight from the United States and Europe repair parts into theater. This helped tremendously, and made sense, but was a reaction to a larger problem of poor logistics intelligence.

Logistics Intelligence

In order to achieve logistics intelligence, the infrastructure must have compatible automation platforms and databases to make it work effectively. One could argue that logistics automation is the "systemic problem" plaguing the theater logistics infrastructure. The root cause is the use of many non-standard ad hoc automation platforms coupled with inadequate tactical communications capability. At one count, there were approximately 26 different stovepipe logistical automation databases in operation at one time. These systems ranged from

manual and batch processing (SAILS/DS4) to state of the art on-line systems (SARSS-O) at that time.

Several units deployed with the notion to use manual procedures throughout the operation. Others speculated that they would receive automation platforms once in theater. The reason many units deployed without automation is that they lacked the confidence in its capability and considered them "for garrison use only."[11] Moreover, when units deployed with automation systems, in many cases they lacked the trained operators needed to employ these systems to their fullest capability. The over reliance of manual procedures limited logistics synchronization and caused a distorted view of the commander's logistical capability.[12] Additionally, this distorted view impacted beyond the theater and affected the entire infrastructure sending a false logistical posture to all levels. If the picture is inaccurate at the theater level, it is just as conflicting at the Department of the Army (DA) and DOD levels where leaders make major decisions based on this information, or lack thereof. The Army recognized the criticality of automation and took the necessary steps to capitalize on its capability. DS/DS occurred at a time when the Army was transitioning its automation architecture.

The current system was that of manually preparing requisitions and submitting them for batch processing. Yet, the new system processed requisitions and provided status from the company through division/corps/theater and National Inventory Control Point (NICP) levels by means of electronic data transfer.[13] Due to a lack of tactical communication infrastructure for logistics automation, units below division hand carried media, in what was termed the "Sneaker Net." This included floppy diskette or magnetic tapes that further delayed processing time. Missing a disk drop was a significant emotional event for any unit within 1st COSCOM. One would rather lose a critical item than miss a disk drop. We were truly trying to make the system work despite the usual system crashes and loss of data. "The sheer volume of DS/DS requisitions resulted in long computer run times, processing backlogs, and hard disk overload. The transmission of a requisition from the company level to the wholesale system averaged between 5 and 15 days."[14] This timeframe seemed like an eternity especially in a hostile environment. Once submitted, customers often did not receive confirmation that the requisition was in the system, its validity, or a routine status on how it is proceeding through the infrastructure. Logisticians were unable to provide reliable logistics intelligence.

So you ask, once again, what is logistics intelligence and how is it different from ITV/TAV? Logistics intelligence is having real-time knowledge on the movement of supplies, equipment, and personnel from origin, into, within, and out of a theater of operation. The center of gravity of logistics intelligence is "compatible" automation platforms and databases and an infrastructure

"that utilizes them" as designed. From a customer's perspective, a more common by-product of logistics intelligence is receiving legitimate and consistent requisition status such as "Where is my stuff -- When will I receive it?" Logistical intelligence of this magnitude was marginal at best in the Gulf War and as a result, caused subsequent problems such as; duplicate requisitions, abused priority system, overloaded supply systems and ports, overextended air assets, and ultimately the loss of customer confidence. Logistics automation is essential to achieving asset visibility.

Everyone talks about ITV, TAV and JTAV so what are they? First, ITV is not the same thing as TAV, similar, but different. ITV is the term used to define the reporting and management of what is moving within the Defense Transportation System (DTS) and the DOD's geographic operational theaters. It is the ability to track the identity, status, and location of unit equipment, and non-unit cargo, from origin to destination. This is not only the physical management, but also knowledge management; the ability to plan and predict requirements based on the information at hand. TAV is the capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies.[15] More specifically, ITV focuses on shipment mode as well as an item whereas TAV focuses on a particular item. Both types of visibility must be accurate, timely, and available at the point of initial interface. While much of the data may be similar, we must be cautious and avoid using the terms interchangeably.[16] Some may argue that in reality, ITV is a sub-component of TAV.

The lack of visibility perpetuated non-standard behavior. Resorting to facsimile, message and telephones resulted in an inordinate amount of off-line requisitioning. Operating a logistics system in the "by exception" mode is contrary to its true design intent. In addition to the diversion of critical labor, these non-standard methods of requisitioning bypassed the supporting SSA and often perpetuated the lack of visibility problem that had generated the duplication requirement in the first place. Rather than expediting delivery of required items, this circumvention resulted in numerous delays as the non-standard actions required manager intervention at every juncture in the process.[17] JTAV offers much hope in solving this problem. According to Major William L. Taylor, USMC, "JTAV is the ability to provide DOD users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies. JTAV also makes it possible to use that information to improve the overall performance of DOD logistics practices."[18] This means "common use items" such as food, medical supplies, fuel, ammunition, and repair parts to name a few will no longer be a distinct service initiative. This is a streamlined DOD venture that saves time, money,

lessens the strain on DOD transportation assets, and ultimately reduces the logistics footprint. The Gulf War did not have this luxury and as a result, customers and logisticians' confidence in the supply system plummeted to an all time low.

Customer Confidence

Users of any system to execute an end must have confidence in that systems ability to accomplish an expected outcome. When the system fails to provide the desired end-state, leadership has little tolerance for excuses therefore one takes exceptional means to make it happen. We are a results oriented military and the lack of confidence will only cause the user to circumvent the system in hopes of finding a suitable workaround. Due to this lack of confidence, units submitted new requisitions for the same items because it was more expedient to do so than to try to locate the items elsewhere. This not only had considerable influence in theater, it affected the entire wholesale system increasing workloads and backlogs at the depots.[19] Everyone paid the price in terms of frustration and additional effort. Multiple requisitions for the same requirement, and repetitive status requests aggravated the run time, backlog, and infiltration problems in processing requisitions. Colonel Greg R. Gustafson puts the importance of logistics confidence into perspective; he states, "the impact of the lack of confidence by the supported customer should not be underestimated. It is inherently obvious that the customer goes to his source of supply to satisfy a requirement. The customer must leave that point with the item in hand or confidence that the requirement is valid and the unit will receive the item. Subsequent visits should reinforce this confidence by providing visibility as the item comes closer to receipt. Failure to focus asset visibility on this interface will simply perpetuate a lack of confidence in the logistics system and generate priority abuse, hoarding, and crisis management. The credibility of the logistics system resides at this interface and resources must be allocated accordingly."[20] The cascading impacts of all of the aforementioned seam tripping are evident in the enormous transaction volume.

The daily transaction volume exceeded the maximum daily capacity for the Corps/Theater ADP Service Center Phase II (CTASC-II) of approximately 60,000 transactions. The daily "transaction volume" ranged from 20,000 to 266,000; this includes all transactions such as requisitions, status inquiries, modification to requisitions, substitutions, and cancellations to name a few. In late December 1990, the HQDA, Deputy Chief of Staff, Logistics (DCSLOG) directed the Supply Policy Division to establish and standardize management practices and procedures to ensure supply discipline, to reduce overall transaction volumes, and to enhance support.[21]

There were so many requisitions with excessive quantities that the NICP started to cancel them arbitrarily without notifying the servicing Materiel Management Center's (MMC). As a result, subordinate MMCs began screening and cancelling requisitions as well. Looking at the figures and a 65 to 85 percent High Priority request rate, it makes one wonder how many of these were duplicate request for similar items? Perhaps half were probably the result of confidence builder requests. Imagine the unnecessary workload, wasted time, equipment wear and tear, and frustration this caused considering the equipment and supplies were somewhere in theater.

Logistics intelligence is not only for supplies and for equipment but is just as important for "real time" visibility on unit locations. This is critical as units are not static and often move to new locations. Imagine what would happen if you ordered several items for delivery to your home or business, but move before they arrive and do not notify the merchant or carrier of your new address. After a period, the parcels eventually find their way back to the sender. DS/DS did not have this option so image what occurred at SSAs, Aerial Ports of Debarkation (APOD), and Sea Port of Debarkation (SPOD). The Iron Mountains spouted up everywhere - there was no return to sender.

The intensity of the operation and rapid relocation and movement of deployed units and personnel in theater made overcoming the resulting backlog extremely difficult and greatly increased the frustration of the supported customers. It became a vicious cycle as materials arrived at SSAs that no longer supported the unit for which the materiel was destined. As units arrived into theater, the majority of the peacetime support relationships changed as units shifted locations and affiliations.[22] At the conclusion of the ground war, units finally located thousands of containers and hundreds of pallets with many containing Class IX items. It is evident that the logistics system in most cases was capable of getting requested supplies and equipment to the theater. However, moving it from the Ports of Debarkation (POD) to final destination proved the long pole in the tent. What have we learned from all this?

Lessons Learned

We do not pay enough attention to lessons learned and usually only apply lip service to the thought. Why not? We achieved end-state plain and simple and I might add, in record time.

As professionals of arms and more importantly, sustainers of armies, we have to look beyond our overall success and dig into the details of why logistical operations did not go as planned.[23] Too often, we channel our thinking to "We Won" - Isn't "winning" all that matters? This type of mindset will surely posture us for future disappointments. "As professionals we

must critically appraise our victories as well as our losses to maintain the winning edge."[24] The United States Army was particularly momentous in this operation, as it comprised the bulk of the ground force units during DS/DS. Combat and combat support forces made it happen. Yet, their hard work would have been in vain without the dedicated efforts of logisticians. General Norman H. Schwarzkopf, the Theater Commander, lauded their superb accomplishments by stating that logisticians overcame in an extraordinary way what he called a "Daunting Task." The overwhelming victory made people forget the pain and not take the actions necessary to resolve the problems. Proof is in the follow-on operations.

In an effort to provide additional thesis validation, I will assess post Cold War operational logistical trends to see if those found in DS/DS are isolated occurrences. The illustrations are Operations Restore Hope (Somalia), Support Hope (Rwanda), and Joint Endeavor (Bosnia). The template for this evaluation is an excellent article by MG Yves J. Fontaine titled "Strategic Logistics for Intervention Forces," which featured in "Parameters" of the United States Army War College (USAWC), winter edition, 1997-1998.

Restore Hope (Somalia)

In April 1992, United Nations (UN) Security Council Resolution 751 established the UN Operation in Somalia named Operation Restore Hope. The deployment of forces and equipment to Somalia encountered problems comparable to those that plagued operations in the Southwest Asia in 1990 and 1991. Strategic planners did not anticipate the large number of logistics personnel required to support "bare base" logistics operations, mainly at the sea and airports. The Time Phased Force Deployment Data (TPFDD) base lacked the flexibility to support a contingency operation. USCENTCOM created a deployment plan, subordinate units made uncoordinated changes. Problems with automation systems caused significant troubles with asset visibility. Push logistics continued to arrive and overwhelm the infrastructure and inaccurate data on that arriving was as prevalent as during DS/DS. Six separate supply support processes emerged during the Somalia intervention; some were both the cause and the consequences of the loss of asset visibility. Units used e-mail and telephones to pass requests directly to colleagues bypassing local logistics centers and once again showed a lack of confidence in the system. Individuals called depots and NICPs directly since their ability to track shipments was next to impossible. Units tapped into UN systems to obtain common use items while action officers and senior officers used the "direct request system" which triggered the movement of supplies without the knowledge of logistics personnel in theater. The Army did not designate a "senior theater logistician" with the necessary authority to make critical logistics

decisions and discipline the supply system. As a result, non-standard supply procedures surfaced in a similar manner to DS/DS. In addition, there was no centralized theater MMC to maintain visibility over supply operations. With this capability lacking, logisticians missed the opportunity to cross-level supplies as necessary and stockpiles started to appear everywhere. This sounds familiar.

Operation Support Hope (Rwanda)

On 4 July 1994, Kigali, the capital of Rwanda fell to the Tutsi-dominated Rwandan Patriotic Front. As in DS/DS and Restore Hope, the TPFDD was overwhelmed with input from several different commands and agencies. This made it difficult to identify the appropriate force structure for the mission. In addition, international relief and non-governmental organizations (NGOs) requirements for personnel and supplies added to an already confusing deployment plan. This all resulted in a backlog at ports of embarkation, unnecessary movement delays, and the loss of asset visibility. Once again, combat forces preceded logisticians. Units did not use standard cargo documentation and manifesting procedures resulting in a loss of visibility during airlift. There were also problems with automated logistics management systems. A new tactical requisition system surfaced ahead of schedule in an effort to overcome problems identified in previous interventions. Yet, the system was ineffective due to delays in establishing the required communications structure. For several days, the Army was unable to transmit supply and materiel requisitions to the appropriate agencies in the United States. The bottom-line: The Joint Task Force (JTF) Commander was unable to influence the operations from a logistical perspective.

Operation Joint Endeavor (Bosnia)

The objective of this mission was to implement the Dayton Agreement of December 1995. The North Atlantic Treaty Organization (NATO) took on the mission with the 1st Armored Division operationally executing the intervention assignment. During this operation, similar types of problems plagued the operation as in DS/DS. Combat forces once again preceded logistics units. This resulted in an unsynchronized deployment plan and a logistics footprint that initially could not adequately support the force. Adjustments to the TPFDD occurred multiple times with its automated system sidelined in place of manual procedures. Logisticians lost visibility of personnel, equipment, and supplies within the logistics pipeline. On a brighter note and perhaps a lesson learned and implemented, logisticians did attempt to correct the visibility problem by the use of radio frequency tags, detection devices, and computer systems. Yet, their use did not provide the intelligence logisticians were hoping to gain. Later in the

deployment, the system became marginally operational and provided a limited amount of knowledge. This was a marked improvement over previous operations if for no other reason than a prudent step was taken to correct a previously cited problem and get "eyes on" logistics activity. This is great news and shows that at least one lesson was painful enough to bring action in an effort to change a previously cited deficiency.

Conclusion

We identified the logistics seams but continue to trip over them well into the early part of 1996. Some five years after DS/DS, and three deployments later the problems remained the same. Force structure and distribution management issues, the use of manual "non-standard" requisition procedures, automation compatibility problems that directly feed a poor logistics intelligence picture resulting in low customer confidence. *We did not perform any better during post Cold War interventions than in DS/DS.*

One can only question if we are really utilizing lessons learned or just continue to learn the same ones again. Granted, each operation discussed was a logistical success. However, little went as planned, or even close to the concept of utilizing prudent logistics practices. MG Yves J. Fountaine did a superb job evaluating the three campaigns and pointing out the seams of the operations bringing out a requirement for the designation of a "single" JTF Logistics Commander, the role filled by LTG Pagonis in DS/DS.

We can no longer ignore these indicators if we truly intend to maintain customer confidence in our products and create a seamless, transparent, and responsive distribution system. The facts are what they are and it does not require a logistician to see, interpret, and digest the issues that call for action. The commonalities of the seams of the three post Cold War interventions in comparison with DS/DS remain "spot-on." In summary, let us review (I promise--the final time) the seams of the operations. They are force structure, distribution management, logistics intelligence, and customer confidence.

Force Structuring

Force structuring is the sequencing of forces, supplies, and equipment that are deploying to an area of operations. This is the initial planning stage of an operation and in my opinion the most critical.

Combat service support units, primarily logisticians, must be included in early troop deployments into the theater. We have seen several occurrences of this not being the case and the results are devastating to a maturing theater and logistical infrastructure. Logisticians must

be on the ground early and in adequate numbers. They must be postured with the proper equipment and supplies to support deploying forces, onward movement, and employment.

Distribution Management

In each operation analyzed, it is evident that logistician's can get the supplies and equipment to the ports. However, it is the last tactical mile leading to the customer that is the problem. The first step to correcting this deficiency is ensuring the logistics intelligence infrastructure is functional well before the first item or troop launches into theater. With "eyes wide open," we can properly focus on the TPFDD ensuring it has the appropriate mixture of combat forces and logisticians to mature the theater tactically and logistically. This is the recipe of success in solving the distribution management problem but understand it is easier to write about it than to execute.

Logistics Intelligence

An improvement in logistics intelligence is crucial to our future success. Automation feeds all the key systems necessary for logisticians to do their jobs effectively and this includes the TPFDD. We must have adequate numbers of platforms, proper system capability, compatible software, and a communications structure that allows the transmission of data. Twenty-six different systems, units deploying without automation, a lack of trained operators are all recipes for disaster. The TPFDD is not agile enough to deal with contingency deployments and remains linked to Cold War theory. It must be more responsive and accept input from multiple agencies while providing real-time results. Ultimately, the system must provide commanders with the visibility of "all assets" while allowing staffs to manipulate each throughout the operation. There is caution with this notion. We must carefully identify those with access to the system. Too many hands in the pudding will certainly make a mess of the results. JTAV is a tool that could be the answer. The use of JTAV will allow services to forecast, procure, and use supplies as one instead of each service individually undertaking this effort. This will result in more efficiently used resources and ultimately a cost savings across the board. This is particularly true in food, fuel, ammunition, lubricants, medical supplies, and repair parts to a certain degree until we have common platforms. The benefits will surface incrementally so do not expect overnight success. Logistics intelligence was a common seam in each of the operations analyzed and it is clear how the lack of it affected customer confidence.

Customer Confidence

Any reason the system fails to perform as expected will affect customer confidence. As a result, users of the system will create workarounds to offset these failures. The key to solving this is not submitting confidence builder requisitions or the like but ensuring the system functions as designed. A functioning logistics infrastructure with rock-solid pipeline intelligence will ensure each user remains informed on the status of logistics activity into, in, and departing the theater. A more basic example is a customer orders a widget and is able to check its status and have the item arrive when the system says it would – nothing more, nothing less. Once we achieve this level of fidelity, customer confidence in the system will no longer be a problem.

Single JTF Logistics Commander

The designation of a single logistics commander (JTF Logistics Commander) with logistics intelligence capability and trained personnel is essential for adequately supporting future operations. The JTF Logistics Commander is the sole point-of-contact and overall responsible for all facets of logistics operations within the theater. He/she must be on the ground early to assess the situation with the authority to make strategic-level decisions on personnel and equipment flow as the situation dictates. In addition, while on the ground early, the JTF Logistics Commander must have the logistical muscle in personnel and equipment to make a difference. Placing him and staff on the ground without capability is setting him up for failure. LTG Pagonis was the go-to person for logistics during DS/DS. However, he was not postured properly for success even though he achieved it. Again, we must ask ourselves if DS/DS had gone longer than one-hundred hours, could we have sustained the effort—was there enough logistical muscle and "brute force" left to give? The proper force structure coupled with JTAV are the capabilities needed to make the JTF Logistics Commander and staff successful and give them the tools to keep their finger on the logistical pulse. This will enable them to make decisions and recommend changes to incoming troops, supplies, and equipment as necessary. Of course, the JTF Logistics Commander would operate within strict guidelines as to what database changes he and staff can make. The changes more than likely will have "second and third level effects" elsewhere and must be vetted and coordinated well in advance. Another key ingredient to making this work is the establishment of a Theater Materiel Management Center which "must fall under" the JTF Logistics Commander as well. This is the single, sole, and distinct MMC for the theater, there may be subordinate MMCs but there is none higher in theater. Therefore, all supply requisitions "must" process through this agency "before" transmission to the NICP or any other SSAs. This way, the JTF Logistics Commander

maintains visibility and truly has "eyes on" and fingers on the pulse; hence, a single belly button for theater logistics.

Final Thoughts

Now that we have summarized the seams, what does all that mean? In order to be successful, smoothing out or eliminating them will certainly posture us for demand-generated support, enhanced visibility of personnel, equipment, and supplies, foster confidence in the supply system while not overwhelming the logistics pipeline. History has shown that we quickly detour from established procedures during military operations and default to a reactionary role as oppose to a proactive one. Logisticians will always get the job done but require so much additional effort to make it so than if we had stayed with established procedures. Starting any deployment from this perspective will definitely cause many of the seams cited in this paper and distract from quality and responsive logistical support.

The need to "push-logistics" into theater at an alarming rate will subside if logisticians are properly postured for success at the onset of hostilities; then and only then will the system work as designed. The Iron Mountains are a firm reminder of this. The intentions are sound and anticipatory logistics is a good thing to a certain degree but too much of it is counterproductive. This is especially true if logisticians are not on the receiving end with the proper force structure to properly receive, account for, and move items quickly to customer units.

Each of the problems is correctable if we react to the logistical lessons learned over the years and stop relearning or resurfacing the same ones. Is this really learning or a selected disregard of critical indicators? Logisticians know what "logistical right looks like," but are often not postured to get into the theater early to make an immediate difference. Therefore, we do what comes natural and go into "reactionary logistics" as opposed to prudent logistics practices. It does not take "Thunder Storms of Logistics" to make an operation successful. In fact, too much logistics is just as overwhelming as too little. This is a case of everyone trying to do the right thing but "reacting to the sound of the gun" as opposed to executing concerted planning between all facets of military might. Logisticians and other branches must work together at the onset of hostilities to best-synchronized response efforts. The spear is the best tool to make an analogy of the importance to synchronize efforts. Per this illustration, consider logistics as the shank and combat-arms forces as the tip of the spear. Neither can function without the other and for the tip to be most effective, it must have the "leverage and weight" of the shank to enhance its effectiveness. If we think in these terms, logisticians and other players will have equal importance at the table of planning and execution. The ultimate end-state is for

logisticians to be postured to provide demand-generated logistical support, which offers a seamless and transparent distribution system that radiates credibility and confidence for all who uses it.

Endnotes

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